

Petroleum Release Closure Criteria

The DEQ PRS evaluates releases for formal closure based upon three primary areas of concern. All three areas must be addressed before a release can be considered for closure. These three areas are:

1. Protectiveness

The release cannot pose unacceptable risks to public health and the environment. Risk criteria typically evaluated includes, but is not limited to depth to groundwater, contaminant type, contaminant mobility, type of receptors, distance to receptors, and the contaminants calculated fate and transport.

2. Environmental requirements

The release must meet, but are not limited to the following laws: Montana's Underground Storage Tank Act, Montana Water Quality act (WQA), federal Resource Conservation and Recovery Act (RCRA), and public nuisance.

3. Adequate information

A thorough investigation must be conducted in accordance with Montana underground storage tank rules (ARM 17.56.603-604) to adequately evaluate whether protectiveness and applicable environmental requirements have been properly evaluated.

Closure Checklist

A checklist based on the three primary areas of concern is used as a screening tool by the DEQ-PRS Staff to determine whether a release is eligible for formal closure. The checklist includes specific closure criteria that must be adequately addressed prior to release closure. All **bolded** responses are considered pre-requisite for closure of a petroleum release, and should be marked appropriately (all questions should be answered 'yes'. Applicable references are shown in *[bracketed italics]*). If a specific criteria item does not apply to a given site, a written explanation must be provided clearly stating why the item does not apply.

A. General *[ARM 17.56.602-605 and DEQ Technical Guidance]*

1. **YES**___ NO___ Has a concise case history been prepared with a thorough presentation of all data? *[ARM 17.56.603(1) and (2)]*
2. **YES**___ NO___ Has a complete site map and soil profile map been prepared that shows former and current USTs, ASTs, excavations, dispensers, underground piping, sample locations, neighboring property, utilities, streets, etc? *[ARM 17.56.603(1)(c)]*
3. **YES**___ NO___ Is a complete communication record available (24-hour and 30-day reports, release letter, etc.)? *[ARM 17.56.602, 603, 604, and 605 and DEQ Technical Guidance]*
4. **YES**___ NO___ Have all areas potentially affected by the sources of subsurface contamination, such as additional PSTs, petroleum-stained soils at loading/unloading areas, dispenser locations, and etc., been investigated? *[ARM 17.56.602(1) and (2), and 17.56.604(1), (2) and (3)]*
5. **YES**___ NO___ Have all potential human or sensitive environment exposure pathways been identified and evaluated, and indicate they do not pose unacceptable exposure risks to receptors?

B. Analytical [ARM 17.56.604(g) and DEQ Technical Guidance]

1. **YES** ☐ NO ☐ Have proper soil and water sampling and handling procedures been practiced (holding time, preservative, cold storage and shipping, minimal headspace in soil samples, no headspace in VOAs, etc.) for all samples supporting the closure decision? [The Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]
2. **YES** ☐ NO ☐ Are the analytical methods and PQLs appropriate for the chemicals of concern? [The Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]
3. **YES** ☐ NO ☐ Are the chain-of-custody, sample receipt forms, chromatograms, and QA/QC present and complete? [The Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]

C. Soil [ARM 17.56.604-605 and DEQ Technical Guidance]

1. **YES** ☐ NO ☐ Are laboratory analytical data available for worst-case soil samples? [ARM 17.56.602(e)]
2. **YES** ☐ NO ☐ Is a soil boring to determine maximum depth of contamination located within the contaminant migration path? [ARM 17.56.602(e)]
3. **YES** ☐ NO ☐ Is the soil sample depth relative to ground surface provided? [The Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]
4. **YES** ☐ NO ☐ Has confirmation sampling been conducted (discrete samples, not composites) after over-excavation? [The Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]
5. **YES** ☐ NO ☐ Has confirmation sampling been conducted after in-situ remediation (post SVE, air-sparg, etc.)? [ARM 17.56.605(6)]
6. **YES** ☐ NO ☐ Is the vertical and horizontal extent of contaminated zone defined? [ARM 17.56.604(3)(f)(ii)(A), ARM 17.56.602(2)(e), and the Montana Quality Assurance Plan for Investigation of UST releases, reference by ARM 17.56.504(2)]
7. **YES** ☐ NO ☐ Is the residual contaminant mass defined and not exceeding Montana Tier 1 Risk-Based Screening Levels (RBSLs)? If Tier 1 RBSLs are exceeded in soil, as approved by DEQ-PRS, alternative methods (e.g., groundwater monitoring) may be used to evaluate leaching potential.

D. Ex-situ Contaminant Treatment or Disposal

1. **YES** ☐ NO ☐ Has confirmation sampling been conducted after ex-situ remediation (e.g. landfarm performance monitoring, etc.)? [ARM 17.56.605(6) and Technical Guidance]
2. **YES** ☐ NO ☐ Does documentation exist for contaminated soil transported to landfill, commercial landfarm, etc?
3. **YES** ☐ NO ☐ Does documentation exist for contaminated water, sludge, and other liquid wastes transported offsite?

E. Groundwater Monitoring [ARM 17.56.604-605 and DEQ Technical Guidance]

1. **YES** ☐ NO ☐ Has groundwater monitoring occurred at the worst-case location, or at a maximum 10 feet down-gradient of the worst-case location, unless precluded by site conditions? [ARM 17.56.604(3)(f)(ii) and Technical Guidance]
2. **YES** ☐ NO ☐ Is the depth to groundwater (the first saturated zone) known? [ARM 17.56.604(c)(i)(B)]
3. **YES** ☐ NO ☐ Are contaminant concentrations less than numerical water quality (WQB-7) standards and Tier 1 Risk Based Screening Levels (RBSLs) in the first groundwater beneath the release/source? This is the point of compliance for measuring groundwater impact. [ARM 17.56.604(3)(f)(ii)(c)]
4. **YES** ☐ NO ☐ Does successive, seasonal groundwater monitoring indicate that WQB-7 Standards are not exceeded? [ARM 17.56.605(6)]. If groundwater RBSLs are exceeded, then has another method approved by DEQ-PRS assessed the risks to applicable receptors?
5. **YES** ☐ NO ☐ Is the monitoring well layout designed with no data gaps (extent and magnitude is defined)? [ARM 17.56.604-605]
6. **YES** ☐ NO ☐ Are monitoring wells constructed properly (screened across the water table, etc.)? [ARM 36.21.800]
7. **YES** ☐ NO ☐ Has first groundwater been sampled, if preferential pathway contaminant migration ("fingering") has possibly occurred in soil?

F. Utility Corridors, Water Wells and Other Receptors [ARM 17.56.602-605; MCA 75-11-514 and DEQ Technical Guidance]

1. **YES** ☐ NO ☐ Are utilities and utility trenches located on the site map?
2. **YES** ☐ NO ☐ If migrations of NAPL or vapors has occurred in a utility trench, has the potential route been investigated?
3. **YES** ☐ NO ☐ If a water well has been potentially impacted, has it been sampled for appropriate chemicals (VOCs, etc.)?
4. **YES** ☐ NO ☐ Have water main, service line, and gasket construction (PE, PVC, steel, copper, etc.) been identified?
5. **YES** ☐ NO ☐ If permeation or infiltration potential exists, has the water main or service line water been sampled?